

Appendix G9
Air Quality – CARB Comments on the BHP Billiton
Emissions Reduction Proposal

AVAILABLE ON CD ONLY



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Arnold Schwarzenegger
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TO: Dwight Sanders, Chief
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FROM: Robert D. Fletcher, Chief /s/
Stationary Source Division

DATE: February 9, 2007

SUBJECT: COMMENTS ON THE BHP BILLITON (BHP) EMISSIONS MITIGATION PROPOSAL

The following are the Air Resources Board (ARB) staff's comments on BHP's proposal for mitigating emissions, including those from vessels operating within California Coastal Waters. ARB staff believe it is critical that air quality in the region be protected and that emission reduction measures be incorporated in the project so that the project's air quality impacts are mitigated. In previous comments, ARB staff has commented on the need for mitigation of vessel emissions and on issues associated with natural gas quality. As a trustee agency participating in the review of this project under the California Environmental Quality Act, we are most concerned about oxides of nitrogen (NOx) emissions from the project, including the marine vessels operating within the full extent of the California Coastal Waters.

Revised Estimated NOx Emissions

The proposed project consists of a floating storage and re-gasification unit (FSRU) which will be located approximately 14 miles off the Ventura County coast. The FSRU will be serviced by tugs, crew vessels, and LNG carriers. Based on BHP's recent estimates, NOx emissions from the operational aspects of the project are as follows:

FSRU	75.6 Tons per Year (TPY)
Vessels	
- District Waters	0.3 TPY (extends three nautical miles off the CA coastline)
- Federal Waters	48.1 TPY (from the District Waters boundary to 24 nautical miles off the CA coastline)
- CA Coastal Waters	35.7 TPY (from the Federal Waters boundary to about 100 nautical miles off the CA coastline)
Total	159.7 TPY

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California Environmental Protection Agency

The revised estimate reflects BHP's re-calculation of LNG carrier shipments, diesel fueling of their support vessels, and a commitment to operate the LNG carriers with boil-off LNG within California Coastal Waters. We have reviewed the methodology used to calculate the estimated NOx emissions from the project, including vessel emissions within California Coastal Waters, and find it to be reasonable.

NOx Emissions Mitigation Proposal

BHP proposes to re-power two line-haul tugs that operate within about 15 miles along the coast of California. The ARB staff estimates NOx emissions reductions associated with the re-power of these tugs to be about 165.5 TPY. This estimate is based on recent source tests of the engines of the two tugs and the results were found to be within the Carl Moyer program guidelines for calculating emissions (approved revision 2005). The estimated NOx emission reductions are apportioned based on the anticipated tug operations within the following regions.

South Coast	47.4 TPY
Ventura	16.8 TPY
Santa Barbara	35.6 TPY
San Luis Obispo	15.2 TPY
Monterey	25.4 TPY
<u>Bay Area</u>	<u>25.1 TPY</u>
Total	165.5 TPY

We have reviewed the methodology used to calculate the estimated emission reductions and find it to be reasonable. However, we understand that there is not yet a consensus on the estimated emission reductions from the mitigation proposal and that the U.S. EPA's staff estimates are less than those presented here. We are committed to continue working with the project proponent and the U.S. EPA to resolve the differences.

By ARB staff calculations, about 70 percent of the NOx emissions reductions (about 115 TPY) would be realized within areas directly impacted by the proposed LNG facility. These areas include from San Luis Obispo County down through the Los Angeles County. Including the Monterey region would increase this amount by another 25 TPY or a total of about 140 TPY (about 85 percent). Prevalent wind patterns off the coast of California indicate that emissions reductions in the Monterey region would also benefit the regions of impact. However, staff questions the appropriateness of counting the emission reductions in the Bay Area since these reductions would likely not benefit the regions where the project is located. Excluding the Bay Area emissions would leave the mitigation proposal short by about 19.3 TPY.

Exclusion of the Bay Area NOx emissions reductions is consistent with the ARB report "Report To The Legislature On Air Pollutant Emissions From Marine Vessels", Volume 1, June 1984. As shown in this report (pages 86 and 87), dominant wind flow patterns off the coast of California indicate that NOx emissions reductions that occur in the Bay Area would have minimal benefit in the South Central Coast and regions below. This was confirmed with ARB's modeling staff. However, exclusion of these emissions reductions does not significantly discount the overall benefits of the mitigation proposal.

The mitigation proposal would achieve NOx emission reductions (about 140 TPY) within about 15 miles along the coast of California which is spatially similar to the distance from where the FSRU is located (14 miles off the coast of California). This would mitigate all of the NOx emissions (75.6 TPY) associated with the operations of the FSRU. The mitigation proposal would also mitigate most of NOx emissions from the LNG carriers and tugs (64.5 TPY out of 83.8 TPY) that would be emitted between 14 to 100 nautical miles off the coast of California. Again, these calculations may not be consistent with the calculations of the U.S. EPA.

ARB Staff Position

BHP's mitigation proposal provides all but about 19 TPY of NOx emissions pursuant to ARB staff calculations and represents more than what would otherwise be required by the current determination of applicable regulations. However, please note that our comments are based on ARB staff estimates of the emission reductions from the mitigation proposal.

Based on the location of the proposed project, U.S. EPA has made a preliminary determination that the proposed liquefied natural gas (LNG) project falls within the exemption provided in Ventura County APCD Rule 26.3 (stationary sources located on San Nicolas and Anacapa Islands). Therefore, the new source review requirements of Ventura County APCD Rule 26.2 have not been applied to the project and full emission offsets have not been included as conditions of the air permit proposed by U.S. EPA in May 2006.

ARB staff is aware that several parties are challenging U.S. EPA's position on the applicability of Ventura County APCD Rule 26.2 regarding new source review. Based on a recent determination, the Ventura County APCD no longer concurs with U.S. EPA on the applicability of Rule 26.2 and now believes that this rule should be used as the basis for the federally required air permit. It is important that the project be permitted properly to both assure appropriate permit conditions are applied and to reduce the potential for later legal challenges to the permit. If U.S. EPA's changes its position on the

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applicability of this rule, BHP's mitigation proposal would need to be evaluated to determine if it meets the criteria applicable under Rule 26.2.

If you have any questions regarding this matter, please call me at (916) 324-8167 or Gary M. Yee, Manager, Industrial Section at (916) 327-5986.

cc: Gary M. Yee, Manager
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